

# SILRES® HP 2020



## Silicone Resins

SILRES® HP 2020 is a low-viscous, reactive aminofunctional methyl phenyl silicone resin.

The product is typically used as curing agent/crosslinker for cycloaliphatic epoxy resins in 2-pack high-solids coatings. It significantly improves the weathering resistance of the coating when compared with organic amine curing agents. Such 2-pack epoxypolysiloxane coatings are an isocyanate-free alternative to 2-pack polyurethanes as weathering-resistant topcoats.

## Properties

SILRES® HP 2020 is used as aminofunctional curing agent for cycloaliphatic epoxy resins in high solids coatings. Epoxypolysiloxane coatings formulated with SILRES® HP 2020 instead of organic curing agents offer a significantly improved weathering resistance.

SILRES® HP 2020 is suitable for the formulation of isocyanate-free topcoats with these properties:

- high initial gloss and good gloss retention
- high long-term weathering resistance
- isocyanate-free ambient temperature crosslinking
- Low VOC coatings, suitable for very high solids coatings
- easy-to-clean/anti-graffiti effect
- corrosion resistance
- Low yellowing
- free of benzylalcohol/alkylphenol
- No intentionally added xylene/ethylbenzene

## Technical data

### General Characteristics

Property	Condition	Value	Method
Appearance	-	clear, colorless to yellowish liquid	-
Viscosity, kinematic	-	approx. 120 mm <sup>2</sup> /s	-
Amine number	-	approx. 2.7 mmol/g	-
H-Amine equivalent	-	246.9 g/mol	-
Non volatiles <sup>(1)</sup>	150 °C   25.0 min   1.0 g	93.0 - 98.0 wt. %	-

<sup>1</sup>Experimental result, caused by condensation reactions which lead to weight loss

These figures are only intended as a guide and should not be used in preparing specifications.

All the information provided is in accordance with the present state of our knowledge. Nonetheless, we disclaim any warranty or liability whatsoever and reserve the right, at any time, to effect technical alterations. The information provided, as well as the product's fitness for an intended application, should be checked by the buyer in preliminary trials. Contractual terms and conditions always take precedence. This disclaimer of warranty and liability also applies particularly in foreign countries with respect to third parties' rights.

Store in a dry and cool place.

Protect against moisture.

## Applications

- Anti-Corrosive Coatings
- Marine & Protective Coatings
- Industrial Coatings

## Application details

SILRES® HP 2020 is a reactive aminofunctional silicone resin and cures epoxy resin. It contains primary and secondary amino groups. The amine hydrogen equivalent weight (AHEW) can be calculated by the formula below using the experimentally determined amine value (available on Certificate of Analysis of the individual batch).

Amine hydrogen equivalent weight (AHEW) [g/mol] = 666,67 / Amine value

Example: Amine value = 2,7 => AHEW = 246,9 g/mol

The epoxy equivalent weight (EEW) of the epoxy resin used allows the correct stoichiometric calculation of the amounts to be used. Stoichiometric ratio 1:1 should be the starting point. Over- and undercured coatings are possible and can lead to performance changes of the cured binder.

As an example, the formulation of a weathering-resistant epoxypolysiloxane topcoat might be as follows:

Paint base (Component 1) comprises

- Cycloaliphatic epoxy resin as binder component
- weathering resistant pigments/fillers
- optionally additives and solvents

Curing agent (Component 2) comprises

- SILRES® HP 2020
- optionally additives and solvents

Example formulations are available on request.

The two components have to be thoroughly mixed prior to paint application. Pot life is app. 4 h, dry-to-touch time is 4 - 5 h at app. 50 µm dry film thickness (23°C/50% relative humidity).

Ready-to-use coatings can be formulated at very low VOC-values (100 - 250 g/l).

The absence of isocyanates is also a great advantage regarding environmental, health and safety issues.

Due to its excellent weathering resistance, the epoxy amino polysiloxane coating can offer UV-resistance and weather-resistance as a polyurethane top coat combined with the adhesion and barrier properties of an epoxy amine coat within a single coat. They can be an economical alternative by replacing a three coat system (zinc-rich primer, epoxy, polyurethane) by a two coat system (zinc-rich primer, epoxypolysiloxane)

The excellent resistance to solvents adds anti graffiti-properties to epoxypolysiloxanes because of the easy removal of graffiti by solvent washing.

Typical applications:

- industrial coatings
- structural steel (infrastructure)
- marine & protective coatings
- pipelines and containers
- automotive coatings (trucks)
- anti-graffiti coatings
- easy-to-clean coatings

SILRES® HP 2020 crosslinks/self-condenses in the presence of moisture. Contact with moisture must be avoided till the final application of the product.

## Packaging and storage

### Packaging

- 25 kg Steel cans
- 200 kg Steel drums

### Storage

Contact with tin (e.g. with improper metal containers) or moisture will decrease shelf life.

The 'Best use before end' date of each batch is shown on the product label.

Storage beyond the date specified on the label does not necessarily mean that the product is no longer usable. In this case however, the properties required for the intended use must be checked for quality assurance reasons.

## Safety notes

Comprehensive instructions are given in the corresponding Material Safety Data Sheets. They are available on request from WACKER subsidiaries or may be printed via WACKER web site <http://www.wacker.com>.

## QR Code SILRES® HP 2020



**For technical, quality or product safety questions, please contact:**

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